

C. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrological setting for the Project site, including runoff, drainage, and water quality based on information available from the City of Oakland, published and unpublished reports, hazard mapping, and on-line resources. Impacts that may result from Project development are identified and mitigation measures to reduce potential impacts are recommended where appropriate.

1. Setting

a. Climate. The climate of the Oakland area is characterized as dry-summer subtropical (often referred to as Mediterranean), with cool wet winters and relatively warmer dry summers. The mean annual rainfall in the vicinity of the Project site, for the period between 1970 and 2002, was approximately 23.3 inches.¹ Analysis of long-term precipitation records indicates that wetter and drier cycles lasting several years are common in the region. Severe, damaging rain storms occur about once every three years.²

b. Runoff and Drainage. There are no creeks or streams crossing the Project site, which is relatively flat and largely covered with impervious surfaces (buildings and pavement). Most of the rainfall at the site encounters the impervious surfaces and flows overland into the City-maintained storm drainage system. All the runoff from the Project site parcels eventually discharges to Lake Merritt. In general, at Parcels 1 through 7, storm water flows to the east on the surface (in street-side gutters) along 18th, 19th, William, and Thomas L. Berkley Way (20th) streets. At Telegraph Avenue, the runoff enters drainage inlets and is conveyed underground in a 30-inch pipe to the north. Flow in the 30-inch pipe enters a 45-inch pipe at 21st Street and is conveyed east toward Lake Merritt. Runoff from Parcel 8 also enters the underground pipe at Telegraph Avenue. Runoff from Parcel 9 enters a drainage inlet on 22nd Street and flows east toward Lake Merritt in a 54-inch concrete pipe.³

c. Flooding. The Project site is not located within the 100-year flood hazard zone, as mapped by the Federal Emergency Management Agency (FEMA),⁴ and therefore, according to FEMA, the site is not susceptible to regional flood hazards. It is possible that blocked storm drains could cause localized flooding during intense storms. The City of Oakland maintains a storm drainage complaint database that documents all localized flooding problems that are reported to the Public Works Department.⁵ A recent database printout (June 16, 2003) did not contain any reports of past or current localized flooding problems at or adjacent to the Project site.

¹ Western Regional Climate Center, 2002, Website: <http://www.wrcc.dri.edu/elimsmsfo.html>.

² Brown, William M. III, 1988, "Historical Setting of the Storm: Perspectives on Population, Development, and Damaging Rainstorms in the San Francisco Bay Region," in *Landslides, Floods, and Marine Effects of the Storm of January 3-5, 1982, in the San Francisco Bay Region, California*, Stephen D. Ellen and Gerald F. Wiczorek, Eds., U.S. Geological Survey Professional Paper 1434.

³ City of Oakland, Storm and Sanitary Sewer Maps, Sheets 221, 222, 238, 1" = 100'.

⁴ Federal Emergency Management Agency, 1982, Flood Insurance Rate Map (FIRM), City of Oakland, California, Community Panel Number 065048 0015, September 30.

⁵ City of Oakland, 2003, Summary- Storm Drainage Complaints, 39 pages.

The site is not located within an identified dam failure inundation hazard area.⁶ Flood water associated with a catastrophic dam failure at the upper and lower Piedmont reservoirs (located about 2.5 miles east of the Project site) would flow several blocks east of the site, not directly affecting the immediate Project site, according to available mapping.

d. Coastal Hazards. The location of the Project site (about one mile from Oakland's Inner Harbor) and the elevation of the site (approximately 10 to 20 feet NGVD) would protect the site from coastal hazards, such as tsunamis, extreme high tides, or sea level rise.

e. Water Quality. The quality of surface water and groundwater in the vicinity of the Project site is affected by past and current land uses at the site and within the watershed, as well as the composition of geologic materials in the vicinity.

The water quality in Lake Merritt has been affected by urbanization within the watershed and modifications to the tidal connection to the Bay. As described by the Lake Merritt Institute, a non-profit, non-governmental organization involved in maintenance and restoration of Lake Merritt:⁷

Tidal flows are an important influence on water quality in Lake Merritt. As has been documented in the past, and continues to be documented today, the Lake is dependent upon flushing from the Bay to minimize water quality problems. Restricted tidal flows to and from the Bay can create low oxygen levels, increased temperature extremes, abnormal salinity levels, and other problems.

Water quality in surface water and groundwater bodies is regulated by the State and Regional Water Quality Control Boards. The Project site is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which is responsible for implementation of State and Federal water quality protection guidelines in the vicinity of the Project site. The RWQCB implements the Water Quality Control Plan (Basin Plan),⁸ a master policy document for managing water quality issues in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region.

As noted above, no creeks or streams cross the site. However nearby Lake Merritt is the receiving surface water body for drainage from the site (drainage at the site enters the underground storm sewer which discharges at Lake Merritt). This outfall operates in compliance with a permit granted to Alameda County, pursuant to the National Pollutant Discharge Elimination System (NPDES) Nonpoint Source Program. The County permit requires that specified performance-based water quality standards are upheld by agencies (e.g., City of Oakland Department of Public Works) operating under the permit. The designated beneficial uses for Lake Merritt include contact and non-contact water recreation, fish spawning, and wildlife habitat. Lake Merritt is designated as "impaired" by the RWQCB for floating material and organic enrichment (low dissolved oxygen) under the Clean Water Act Section 303(d).⁹ The impairment of Lake Merritt has been assigned a

⁶ Association of Bay Area Governments website (<http://www.abag.ca.gov>).

⁷ Lake Merritt Institute, 2003, website: http://www.lakemerrittinstitute.org/info_projects3.html.

⁸ San Francisco Bay Regional Water Quality Control Board, 1995, *Water Quality Control Plan*, 21 June.

⁹ State of California, Regional Water Quality Control Board, San Francisco Bay Region, 1998, Section 303(d), Clean Water Act, Impaired Water Body Lists.

“low priority” by the RWQCB on the 303(d) list. The RWQCB is scheduled to begin developing a water quality management plan for Lake Merritt in 2006, completing the plan by 2010.

Runoff water quality is regulated by the Federal National Pollution Discharge Elimination System (NPDES) Nonpoint Source Program (established through the Clean Water Act); the NPDES program objective is to control and reduce pollutants to water bodies from nonpoint discharges. The main nonpoint discharge regulated by the NPDES program is stormwater runoff.

The NPDES Program is administered by the California Regional Water Quality Control Boards. The Project site would be under the jurisdiction of the San Francisco Bay RWQCB and the Alameda Countywide Clean Water Program (ACCWP). The City of Oakland is a participant in the ACCWP. The ACCWP is a function of the County government that maintains compliance with the NPDES Storm Water Discharge Permit and promotes storm water pollution prevention within that context. County compliance with the NPDES Permit is mandated by State and federal laws, statutes, and regulations.

Participating agencies (including the City of Oakland) must comply with the provisions of the County permit by ensuring that new development and redevelopment mitigate, to the maximum extent practicable, water quality impacts to storm water runoff both during construction and operation periods of projects. Alameda County is implementing the current NPDES permit for storm water discharges under the *Alameda Countywide Clean Water Program, Stormwater Management Plan*.¹⁰ Provisions in the plan require that participating agencies:

- Work with concerned citizens to increase community awareness, everyday pollution prevention and creek preservation.
- Work with local businesses to control pollution in storm drains and creeks.
- Monitor and assess pollution problems and health of local creeks and lakes.
- Design practices for city and county government operations that contribute less pollution.

In addition, in 1994 the RWQCB staff developed its *Staff Recommendations for New and Redevelopment Controls for Storm Water Programs*. The *Staff Recommendations* specify the required BMPs for various types and sizes of new development. The proposed Project would be required to comply with the *Staff Recommendations*.

Recent changes to the permit held by the ACCWP are detailed in RWQCB Order R2-2003-0021 (NPDES Permit No. CAS0029831). Revisions that potentially apply to the proposed Project include Provision C.3, which specifies that “Permittees shall require Group 1 Projects to implement appropriate source control and site design measures and to design and implement stormwater treatment measures, to reduce the discharge of stormwater pollutants to the maximum extent practicable. Implementation of this requirement shall begin February 15, 2005.”¹¹ The proposed Project would be considered a “Group 1 Project.”

¹⁰ Alameda Countywide Clean Water Program, 2003. Stormwater Management Plan, February 19.

¹¹ Regional Water Quality Control Board, 2003, letter submitted to Ms. Patricia McGowan of the City of Oakland from Brian Wines, RWQCB, March 28.

If construction of the proposed Project is initiated prior to February 15, 2005, the Project would be required to comply with the 1997 *Stormwater Management Plan (SMP)*. However, if construction were initiated after February 15, 2005, the Project would be required to comply with the more stringent requirements of the 2003 permit.¹² Under either scenario, the RWQCB encourages projects to incorporate stormwater controls and treatment measures into all projects to the maximum extent practicable.

2. Impacts and Mitigation Measures

This section outlines potential hydrology and water quality impacts and recommends mitigation measures. Less-than-significant impacts to hydrology and water quality are listed first, followed by significant impacts.

a. Significance Criteria. The Project would have a significant impact on the environment if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Result in substantial erosion or siltation on- or off-site that would affect the quality of receiving waters;
- Result in flooding on- or off-site;
- Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems;
- Create or contribute runoff which would be an additional source of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a substantial risk of loss, injury or death involving flooding;
- Expose people or structures to a substantial risk of inundation by seiche, tsunami, or mudflow; or
- Fundamentally conflict with elements of the City of Oakland Oakland Creek Protection ordinance intended to protect hydrologic resources. Although there are no specific numeric/quantitative criteria to assess impacts, factors to be considered in determining significance include whether there is substantial degradation of water quality through: (a) discharging a substantial amount of pollutants into a creek; (b) significantly modifying the natural flow of the water or capacity; (c) depositing substantial amounts of new material into a creek or causing substantial bank erosion or instability; or (d) substantially endangering public or private property or threatening public health or safety.

¹² Wines, Brian, 2003. Water Resources Control Engineer, San Francisco Bay Regional Water Quality Control Board, personal communication with Bruce Abelli-Amen, Baseline Environmental Consulting, June 10.

b. Less-than-Significant Hydrology and Water Quality Impacts. Development of the proposed Project would not contribute to depletion of groundwater supplies or reduce the amount or quality of water available for public water supplies. The amount of impervious surfaces would not be substantially altered, and implementation of the proposed Project would not result in flooding on- or off-site. It would not place structures within the 100-year flood hazard area, would not expose people or property to flooding associated with seiches or tsunamis, and would not endanger public or private property or threaten public health or safety as a result of flooding. The proposed Project does not propose development that would substantially alter a natural water course. There are no creeks crossing the site, or nearby, and therefore potential impacts to creeks are considered less than significant.

c. Significant Hydrology and Water Quality Impacts. Two potentially significant impacts are evaluated below. With implementation of each recommended mitigation measure, these impacts would be reduced to less-than-significant levels.

Impact HYD-1: Construction activities for the Project could result in degradation of water quality in Lake Merritt and the Bay by reducing the quality of storm water runoff. (S)

Construction and grading within the Project site would require temporary disturbance of surface soils and impervious cover. During the construction period, grading and excavation activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. Soil stockpiles and excavated parcels on the Project site would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation in water courses at or away from the Project site. The accumulation of sediment could result in blockage of flows, potentially resulting in increased localized ponding or flooding.

The potential for chemical releases is present at most construction sites. Once released, substances such as fuels, oils, paints, and solvents could be transported to nearby surface waterways and/or groundwater in storm water runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters.

Mitigation Measure HYD-1: The applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the Project. The SWPPP would act as the overall program document to provide measures to mitigate significant water quality impacts associated with implementation of the Project. The SWPPP shall include specific and detailed Best Management Practices (BMPs) required to mitigate significant construction-related pollutants. These controls shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

An important component of the storm water quality protection effort will be the education of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of storm water quality protection, site supervisors shall conduct regular tailgate

meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. City of Oakland personnel shall conduct regular inspections to ensure compliance with the SWPPP.

BMPs to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased when grading occurs during the rainy season, as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Access to and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment (this BMP is particularly important since much of the earthwork will involve loading trucks for off-site transport of soil excavated for the below-ground parking structures). Vehicle and equipment wash down facilities shall be designed to be accessible and functional both during dry and wet conditions.

The SWPPP shall be reviewed for completeness by the City of Oakland, Public Works Agency, Environmental Services Division prior to approval of grading plans. (LTS)

Impact HYD-2: Post-construction operation of the Project could result in degradation of water quality in Lake Merritt due to a net decrease in the quality of storm water runoff. (S)

New construction and intensified land uses at the Project site would result in increased vehicle use in the vicinity of the Project site and potential discharge of associated pollutants. Leaks of fuel or lubricants, tire wear, and fallout from exhaust contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in runoff being transported to receiving waters. Runoff from the proposed common landscaped areas and the parks may contain residual pesticides and nutrients. Long-term degradation of water quality runoff from the site could impact water quality in Lake Merritt and the Bay. On the other hand, since the Project proposes all new parking facilities to be below ground level, storm water runoff from parking facilities would be eliminated, potentially resulting in an improvement in runoff quality from the site relative to existing conditions.

Mitigation Measure HYD-2: The applicant shall comply with the requirements of the 2003 Alameda County *Stormwater Management Plan* and/or the RWQCB Revised Order 01-024 (NPDES Permit No. CAS029718), as appropriate, based on the timing of construction. As applicable, the applicant shall incorporate measures to mitigate potential degradation of runoff water quality from all portions of the completed development, including roof and sidewalk runoff. The final design team for the Project should include all applicable measures from *Start at the Source*, Design Guidance Manual for Stormwater Quality Protection,¹³ which may include, but not be limited to pervious pavements, hybrid parking lots, vegetated swales,

¹³ Bay Area Stormwater Management Agencies Association, 1999, *Start at the Source*, Design Guidance Manual for Stormwater Quality Protection

biofilters, roof drainage to landscaped areas, minimization of directly connected impervious surfaces, and infiltration islands.

The Project compliance with requirements for post-construction stormwater controls shall be reviewed by the City of Oakland, Public Works Agency, Environmental Services Division prior to approval of grading plans. (LTS)

Impact HYD-3: Dewatering effluent may contain contaminants and if not properly managed could cause impacts to the environment. (S)

Dewatering operations may be required during the excavation for, and construction of, the below-ground parking area. There are two general classes of pollutants that may result from dewatering operations: sediment and chemical compounds (including toxics and petroleum hydrocarbons). High sediment content in dewatering discharges is common because of the nature of the operation in which soil and water mixes in the turbulent flow of high volume pump intakes. Chemical pollutants are most commonly found in dewatering effluent in areas with a history of groundwater contamination (e.g., leaks to the subsurface from industrial sites). Much of the Project site is located in an area of confirmed or potential historic chemical releases (refer to Chapter IV.G, Hazards and Hazardous Materials, for discussion of identified areas of potential subsurface contamination). Direct discharge of dewatering effluent to the storm drainage system could result in water quality impacts to Lake Merritt .

Mitigation Measure HYD-3: The SWPPP shall include requirements for the proper management of dewatering effluent as necessary to mitigate significant impacts to the environment. The Hazards section of this DEIR (Mitigation Measure HAZ-1b) addresses and mitigates potential impacts associated with health and safety impacts to site workers and the public associated with the dewatering effluent.

At minimum, all dewatering effluent will be contained prior to discharge to allow the sediment to settle out, and filtered, if necessary, to ensure that only clear water is discharged to the storm or sanitary sewer system. Alternatively, effluent can be hauled off-site by tanker truck for disposal. Based on the historical land uses at the Project site and groundwater sampling of the existing network of monitoring wells, it is possible that groundwater underlying each of the parcels has been impacted by chemical releases. All dewatering effluent will be analyzed by a State-certified laboratory for the suspected pollutants (at minimum, petroleum hydrocarbons, solvents, and metals) prior to discharge. Based on the results of the analytical testing and the concentrations of pollutants identified, if any, the applicant will dispose of the water in one (or more) of the following ways:

- a) Discharge the water to the storm drain under permit from the RWQCB. It is unlikely that the RWQCB would allow discharge of any untreated dewatering effluent that contained detectable concentrations of chemical pollutants and that for these types of discharges, alternative disposal options may be required;
- b) Discharge the water to the sanitary sewer system under permit from the East Bay Municipal Utilities District;
- c) Haul the water to a licensed off-site disposal facility for treatment and disposal under appropriate manifest.

The Project proponent shall demonstrate to the City of Oakland, Planning and Development Department that appropriate permits have been acquired prior to discharge of any dewatering effluent. (LTS)